Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NABIL RIZKALLA

Appeal No. 1997-2635
Application No. 08/523,779

ON BRIEF

Before GARRIS, WALTZ, and TIMM, Administrative Patent Judges.

WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the examiner's refusal to allow claims 24 through 30 as amended subsequent to the final rejection (see the amendment dated Aug. 5, 1996, Paper No. 8, entered as per the Advisory Action dated Aug. 28, 1996, Paper No. 11). Claims 24 through 30 are the only claims remaining in this application.

According to appellant, the invention is directed to a process of preparing a catalyst by impregnating a porous support with a hydrocarbon solution of a silver salt of an organic acid followed by impregnation of the activated silver catalyst with an anhydrous alcohol solution of an alkali metal salt (Brief, pages 2-3). Appellant states that claims 24-27 are grouped together while claims 28-30, directed to the specific alkali metal salt of cesium bicarbonate, form a second grouping (Brief, pages 4-5). In view of this statement and appellant's specific arguments regarding the separate patentability of each group (Brief, pages 7-8), we select claims 24 from the first grouping and claim 28 from the second grouping and decide this appeal as to the grounds of rejection on the basis of these claims alone. See 37 CFR § 1.192(c)(7) and (8)(1995). A copy of illustrative claims 24 and 28 is attached as an Appendix to this decision.[1]

[1]We note that claim 25 is redundant as it does not further limit the claim it depends upon, i.e., claim 24 (see footnote 1 on page 11 of the Brief). We also note that claim 28 improperly depends upon claim 25 when it apparently should depend upon claim 27. In the event of further or continuing prosecution, the examiner and appellant should correct these claims to comply with the requirements of 35 U.S.C. § 112, paragraphs two and four.

The examiner has relied upon the following references as evidence of obviousness:

Armstrong	4,555,501	Nov. 26, 1985
Liu	5,008,413	Apr. 16, 1991

Claims 24-30 stand rejected under 35 U.S.C. § 103 as unpatentable over Armstrong or Liu (Answer, pages 3 and 4).[2] We *affirm* the examiner's rejection for reasons which follow.

OPINION

The examiner finds that Armstrong and Liu each disclose a process for preparing silver catalysts by impregnating a porous support with a hydrocarbon solution of a silver salt of a neo-acid having seven or more carbon atoms followed by impregnation with a solution of a cesium salt (Answer, pages 3-4).

[2]The examiner made separate rejections of claims 24-28 and claims 28-30 under § 103 over Armstrong or Liu (Answer, pages 3 and 4). For convenience and conciseness, we will discuss these separate rejections as one rejection under § 103 over Armstrong or Liu involving claims 24 through 30.

Appellant does not contest the examiner's findings and apparently agrees with the examiner that the differences between the applied references and the claimed subject matter are that the references disclose the impregnation of the silver catalyst with an aqueous solution of any cesium salt while claim 24 is limited to alkali metal salt impregnation "in the substantial absence of water" and claim 28 is limited to the alkali metal salt of cesium bicarbonate (see the Brief, page 6, and the Answer, pages 4-5).

With respect to the contested limitation of claim 24, the examiner concludes that it would have been obvious to exclude water from the alkali metal impregnation step of Armstrong or Liu (Answer, page 4) while appellant argues that such an exclusion is not *prima facie* obvious (Brief, pages 7-8). Appellant's argument is not well taken since appellant has admitted that the "general interchangeability of aqueous and non aqueous procedures" is well known in the art for post deposition of alkali metal on silver catalysts (specification, page 4, l. 23-page 5, l. 3).[3] Appellant admits that several

[3]It is axiomatic that admitted prior art in an applicant's specification may be used in determining the patentability of

processes in the prior art use non-aqueous solutions of cesium salts, including cesium carbonate, for the post deposition impregnation step of alkali metals (specification, page 4, ll. 11-22).[4] Accordingly, we determine that the use of non-aqueous solutions of alkali metal salts in the post deposition step of producing silver catalysts (i.e., step (b) of claim 24 on appeal) would have been *prima facie* obvious to one of

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a claimed invention (*In re Nomiya,* 509 F.2d 566, 570-71, 184 USPQ 607, 611-12 (CCPA 1975)); and that consideration of the prior art cited by the examiner may include consideration of the admitted prior art found in an applicant's specification (*In re Davis,* 305 F.2d 501, 503, 134 USPQ 256, 258 (CCPA 1962); *cf., In re Hedges,* 783 F.2d 1038, 1039-40, 228 USPQ 685, 686 (Fed. Cir. 1986)).

[4]See Maxwell, U.S. Patent No. 4,033,903, cited at page 4, l. 15, of appellant's specification. Maxwell teaches post deposition of alkali metals onto silver catalysts where the alkali metal is deposited onto the silver catalyst by impregnating it with a solution of the alkali metal "in a suitable solvent, particularly an organic solvent." (Maxwell, col. 5, ll. 34-38). Maxwell further exemplifies some suitable organic solvents, including the use of an organic solvent with water but cautions that "with some salt-solvent combinations the presence of high concentrations of water may be deleterious to the ultimate performance [of the silver catalyst]" (col. 5, ll. 44-46 and 51-59). In the event of further or continuing prosecution of this application, the examiner should consider the specific teachings of Maxwell in determining the patentability of any claimed subject matter.

ordinary skill in the art at the time of appellant's invention.[5]

Appellant argues, with respect to claims 28-30, that neither Armstrong or Liu teach the use of cesium bicarbonate (Brief, pages 6 and 8). The examiner finds that both references "broadly disclose the use of cesium compounds, and cite as examples cesium hydroxide (Liu, column 6, lines 50-55) and cesium hydroxide, nitrates, halides, formates and acetates (Armstrong, column 6, lines 55-60)." (Answer, paragraph bridging pages 4-5). Appellant admits that it was known in the art that cesium is the preferred alkali metal in post deposition procedures and "[v]arious sources of cesium are catalogued in the prior art" such as cesium bicarbonate (specification, page 4, ll. 3-7).[6] Accordingly, we determine that the use of cesium bicarbonate as the source of the alkali metal impregnated onto the silver catalyst would have been

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[5]Our determination here renders moot any interpretation of the claimed word "substantial" with regard to the amount of water permissible in step(b) of claim 24 on appeal. See the Answer, page 6; the Reply Brief, pages 1-3; and the specification, page 10, ll. 10-14, and page 11, ll. 8-9.

[6]See also Maxwell, col. 5, ll. 38-40.

prima facie obvious to one of ordinary skill in the art at the time of appellant's invention.

For the foregoing reasons, we determine that the examiner has established a *prima facie* case of obviousness in view of the reference evidence and admitted prior art. When appellant submits evidence to rebut this *prima facie* case of obviousness, we must reevaluate the evidence based on the totality of the record and determine whether the preponderance of evidence weighs most heavily in favor of obviousness or nonobviousness. *In re Oetiker,* 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

Appellant submits that Example 3 in the specification shows improved results for the use of cesium bicarbonate over a catalyst prepared using cesium hydroxide in an alcohol-water solution (Brief, pages 6, 8-9; Reply Brief, pages 3-4). The examiner asserts that the results of Example 3 in the specification do not overcome the evidence of obviousness because there are too many variables in the showing and the results do not significantly differ from the prior art example (Answer, pages 8-9).

We agree with the examiner that there are so many variables presented in the comparison that the cause and effect sought to be shown cannot be ascertained. *In re Dunn,* 349 F.2d 433, 439, 146 USPQ 479, 483 (CCPA 1965). The many variables include using activation with air at 500 EC. with no time specified in Example 3, while also not specifying the amount of cesium hydroxide, water and alcohol in solution (see page 16 of the specification). Example 3 also dries the impregnated cesium with a vacuum while Example 1 dries with nitrogen at a temperature not exceeding
300 EC. (see the specification, page 14).

Appellant has not shown that the results presented are truly unexpected. *See In re Klosak,* 455 F.2d 1077, 1080, 173 USPQ 14, 16 (CCPA 1972). The results of Example 3 differ from those presented in Examples 1 and 2 (see page 15 of the specification) but this difference has not been shown to be unexpected. The burden of establishing unexpected results rests with those who assert them. *See Klosak, supra.* The reaction temperature of Example 3 only differs from Examples 1

and 2 by 2 and 4 degrees C., respectively, while the selectivity differs by 1.4% and 1.1%, respectively.[7]

Furthermore, the comparative data is not commensurate in scope with the subject matter of claims 24-27, only comparing cesium bicarbonate with cesium hydroxide while claims 24-27 are not limited to cesium bicarbonate. *In re Payne,* 606 F.2d 303, 315-16, 203 USPQ 245, 256 (CCPA 1979). Additionally, the comparison is not with the closest prior art as Armstrong teaches a preference for cesium acetate (col. 6, ll. 59-60). *In re Burckel,* 592 F.2d 1175, 1179, 201 USPQ 67, 71 (CCPA 1979).

For the foregoing reasons, based on the totality of the record, including the arguments and evidence submitted by appellant, we determine that the preponderance of evidence weighs most heavily in favor of obviousness. Accordingly, the examiner's rejection of claims 24-30 under 35 U.S.C. § 103 over Armstrong or Liu is affirmed.

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[7]The results of Example 2 actually are not directly comparable to the results from Example 3 since Example 2 only has results after 100 hours of operation while the results from Example 3 are after 150 hours of operation. No results are reported in Example 3 for operation at 400, 700 or 977 hours (compare Table I, page 15 of the specification).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

BRADLEY R. GARRIS Administrative Patent Judge	)	
THOMAS A. WALTZ Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
CATHERINE TIMM Administrative Patent Judge	)	

lp

Appeal No. 1197-2635
Application No. 08/523,779

KENNETH H. JOHNSON
P O. BOX 630708
HOUSTON TX 77263

APPENDIX

Claim 24. A process for preparing a supported silver catalyst for the vapor-phase oxidation of ethylene to ethylene oxide, comprising the steps of:

(a) impregnating a porous support having a surface area of about 0.2 to 2.0 m^2/g with a hydrocarbon solution of a silver salt of an organic acid sufficient to provide 3 to 20 wt% silver on the support; and

(b) impregnating the silver impregnated support with an anhydrous solution of an alkali metal salt in the substantial absence of water to obtain a finished catalyst having about 1 to 6 X 10^{-3} gew of the alkali metal per kg of catalyst.

Claim 28. The process according to claim 25 wherein said cesium is present in said anhydrous alcohol solution as cesium bicarbonate.

Leticia

Appeal No. 1197-2635
Application No. 08/523,779

APJ WALTZ

APJ GARRIS

APJ TIMM

DECISION: AFFIRMED
Send Reference(s): Yes No
or Translation (s)
Panel Change: Yes No
Index Sheet-2901 Rejection(s):

Prepared: September 25, 2001

Draft Final

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OB/HD GAU

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